Factorising Harder Quadratics

Video 119 on www.corbettmaths.com

Examples

Workout

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Question 1: Factorise each of the following

(a) $2x^2 + 7x + 5$ (b) $2x^2 + 11x + 15$ (c) $2x^2 + 9x + 10$

(d) $3x^2 + 13x + 4$ (e) $3x^2 + 4x + 1$ (f) $3x^2 + 8x + 4$

(g) $5x^2 + 13x + 6$ (h) $5x^2 + 26x + 5$ (i) $7x^2 + 10x + 3$

(j) $11x^2 + 47x + 12$ (k) $2x^2 + 17x + 36$ (l) $5x^2 + 62x + 24$

Question 2: Factorise each of the following

(a) $3x^2 + x - 4$ (b) $7x^2 + 20x - 3$ (c) $2x^2 - 13x + 15$

(d) $3x^2 - 17x + 10$ (e) $3x^2 - 16x - 12$ (f) $3x^2 - x - 4$

(g) $5x^2 - 13x - 6$ (h) $3x^2 + 8x - 3$ (i) $2x^2 - x - 10$

(j) $2x^2 - 3x - 44$ (k) $7x^2 - 22x + 16$ (l) $2x^2 + 15x - 38$

Question 3: Factorise each of the following

(a) $6x^2 + 13x + 6$ (b) $9x^2 + 9x + 2$ (c) $6x^2 + 13x + 2$

(d) $8x^2 + 41x + 5$ (e) $9x^2 + 6x + 1$ (f) $8x^2 + 26x + 15$

(g) $8x^2 + 29x + 15$ (h) $10x^2 + 9x + 2$ (i) $9x^2 + 27x + 20$

(j) $10x^2 + 17x + 7$ (k) $12x^2 + 13x + 3$ (l) $15x^2 + 32x + 16$

Question 4: Factorise each of the following

(a) $9x^2 - 12x - 5$ (b) $4x^2 - 4x - 3$ (c) $4x^2 - 11x + 6$

(d) $6x^2 - 7x + 2$ (e) $10x^2 - 91x + 9$ (f) $4x^2 + 25x - 56$

(g) $6x^2 - 35x + 49$ (h) $6x^2 - 7x - 10$ (i) $8x^2 + 10x - 3$

(j) $15x^2 + 31x + 10$ (k) $12x^2 + 5x - 3$ (l) $20x^2 - 23x + 6$

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Apply

Question 1: A quadratic expression, $3x^2 + ax + 10$, can be factorised.
Find all possible values for a.
a can be positive or negative.

Question 2: A quadratic expression, $4x^2 + bx - 12$, can be factorised.
Find all possible values for b.
b can be positive or negative.

Question 3: A quadratic expression, $2x^2 - x + c$, can be factorised.
Find three possible values for c.

Question 4: Andrew has completed his homework on factorising quadratics.
Can you spot any mistakes?

Factorise $2y^2 + 7y - 15$

$(2y + 3)(Y - 5)$

Factorise $2w^2 - 9w + 4$

$(2w + 1)(w + 4)$

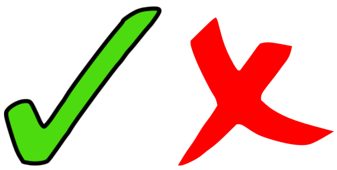
Factorise $3y^2 + 10y - 8$

$(3x - 2)(x + 4)$

Factorise $6w^2 - 11w - 10$

$(3w + 2)(2w - 5)$

Answers



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